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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
NGUYEN BA, HOANG VU A	
ART UNIT	**PAPER NUMBER**
2192	

DATE MAILED: 12/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/083,670	BACHMAT ET AL.	
	Examiner	Art Unit	
	Hoang-Vu A. Nguyen-Ba	2192	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 September 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-29* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-29* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *17 March 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. This action is responsive to the amendment filed September 12, 2005.

2. Claims 1-29 are pending. Claims 1, 10, 14, 15, 16 and 29 are independent claims.

Response to Amendments

3. The objection to the title of the disclosure, which was not descriptive, is withdrawn in view of Applicants' amendment to the title.

Response to Arguments

4. The rejection of Claims 1-9, 11-13 and 14 under 35 U.S.C. § 101:

Applicants' arguments have been fully considered but they are not persuasive. Following is an examiner's response to Applicants' arguments:

a. Applicants' arguments regarding the rejection of Claim 11-13:

As an initial matter, the examiner apologizes that because of a typographical error, the preamble of section 11 of the previous Office action indicated "Claims 1-9, 11-13 and 14 are rejected under 35 U.S.C. § 101..." instead of -- Claims 1-9, 10-13 and 14 are rejected under 35 U.S.C. § 101... --

The examiner agrees with Applicants that as a matter of logic how can Claims 11-13 recite non-statutory subject matter if Claim 10 is already directed to statutory matter. However, absent any typographical error, the examiner respectfully notes that using Applicants' logic, the rationale for the rejection still stands because if Claim 10 is statutory there would be no rationale for holding Claims 11, 12 and 13 non-statutory since these claims incorporate by reference the limitations of Claim 10 unless Claim 10 is non-statutory. In the instant application, Claim 10 is inherently non-statutory because none of the

recited steps in Claims 11, 12, 13, which incorporates the steps of Claim 10, are specifically tied to a machine. See section 11 of the previous Office action.

b. Applicants' arguments regarding the rejection of Claims 1-9 and 14:

in response to Applicants' argument that Claim 1's step of providing scores to an output device clearly indicates that this step must be carried out by a machine, the examiner notes that one skilled in the art could provide for this step with instruction code, i.e., computer program per se, without this step being actually and necessarily executed by a machine; an instruction code even recorded on a piece of paper (i.e., concrete and tangible) by a human does not produce **useful** results until stored on a physical medium and executed by a processor;

in response to Applicants' argument that the preamble of Claim 1 refers to a method in a data-storage system and that a data-storage system is clearly a machine, the examiner respectfully notes that the data-storage system is broadly and reasonably interpreted to be a database which is a system of software modules that constitute a database (e.g., Oracle® , Access® , etc.) or computer programs per se. The reason why this broad and reasonable interpretation is proper is because in the instant disclosure (see section Detailed Description, 1st ¶), Applicants specifically indicates that "However, the principles of the invention described herein are independent of the particular media used to store data." Besides a physical data-storage system, a database can reasonably be a data-storage media or system; thus, a data-storage system is **not** clearly a machine;

in response to Applicants' argument that the mere fact that a claim recites steps that can be carried out by a human being does not render the claim unpatentable under section 101 (for example, *Alco Standard*; see

Applicants' Remarks, filed September 12, 2005, page 1), the examiner respectfully notes that the previous Office action has not raised the issue of unpatentability of the claimed method because the method steps are being performed by a human being; rather, the previous Office action indicates that under the most recent Federal Circuit cases, transformation of data by a machine (e.g., a computer) is statutory subject matter provided the claims recite a "practical application, i.e., 'a useful, concrete and tangible result.'" State St. Bank & Trust Co. v. Signature Fin. Group, Inc., 149 F.3d 1368, 1373, 47 USPQ2d 1596, 1600-01 (Fed. Cir. 1998);

in response to Applicants' arguments that Claims 1 and 14 both recite methods for causing a computer to: execute one algorithm, simulate the performance of one or more different algorithms, provid[e] scores indicative, etc. and that the method provides a way to "grade" how well several algorithms might perform and that this is a useful result because it provides a way to choose which of several algorithms to use in processing an input-data stream in a data storage system, the examiner notes that the steps listed above and claimed in the claims can be provided with instruction code and until these instruction code are specifically stored on a physical storage device and specifically executed by a processor, these instruction code are mere non-functional descriptive data, which renders the claims non-statutory.

In view of the foregoing discussion, the rejection of Claims 1-9, 11-13 and 14 under 35 U.S.C. § 101 still stand.

5. The rejection of Claims 1-29 are rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,809,282 to Cooper et al. ("Cooper":

Although the examiner respectfully disagrees with Applicants' characterization of the examiner's interpretation of Cooper as anticipating Applicants' claims and considers that Applicants' arguments are unpersuasive, the examiner herein withdraws the rejection of these claims under 35 U.S.C. § 102(b) as being anticipated by Cooper in order to advance the prosecution of Applicants' application.

Applicants' arguments are thus moot in view of the new grounds of rejection presented herein.

Claim Rejections - 35 USC § 101

6. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

7. Claims 1-9, 10-13 and 14 are rejected under 35 U.S.C § 101 because the claimed invention is directed to non-statutory subject matter.

Statutory subject matter requires two things:

(1) it must be in the "useful arts," U.S. Const., art. I, § 8, cl. 8, which is equivalent to the modern "industrial" or "technological arts," defined by Congress in the four categories of "process, machine, manufacture, or composition of matter" in 35 U.S.C § 101; and if it is,

(2) it must not fall within one of the exceptions for "laws of nature, physical phenomena and abstract ideas." Under the most recent Federal Circuit cases, transformation of data by a machine (e.g., a computer) is statutory subject matter provided the claims recite a "practical application, i.e., 'a useful, concrete and tangible result.'" State St. Bank & Trust Co. v.

Signature Fin. Group, Inc., 149 F.3d 1368, 1373, 47 USPQ2d 1596, 1600-01 (Fed. Cir. 1998).

In the present application, the language of Claims 1-9, 10-13 and 14 raises a question as to whether the claim is directed merely to an abstract idea that is not tied to a technological art, environment or machine which would result in a practical application producing a concrete, useful, and tangible result to form the basis of statutory subject matter under 35 U.S.C. § under 35 U.S.C. § 101.

Furthermore, the Office's interpretation of Claims 1-9, 10-13 and 14 is that these Claims do not expressly or implicitly require performance of any steps by a machine, such as a general purpose digital computer. Structure will not be read into the Claims for the purposes of the statutory subject matter analysis although the steps might be capable of being performed by a machine.

On this basis, Claims 1-9, 10-13 and 14 are rejected under 35 U.S.C. § 101.

Claim Rejections - 35 USC § 112

8. The following is a quotation of the first paragraph of 35 U.S.C. §112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

9. Claims 1, 6, 7, 8, 9, 10, 14, 15, 16, 17, 20, 21, 22, 23, 24, 25, 27, 28 and 29 are rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claims 1, 6, 7, 8, 9, 10, 14, 15, 16, 17, 20, 21, 22, 23, 24, 25, 27, 28 and 29 recite the following limitations which are specifically described in the specification:

evaluating an incumbent-algorithm score indicative of a performance of an incumbent algorithm (Claims 1 and 16);

obtaining meta-data characterizing an input-data stream provided to said incumbent algorithm (Claims 6 and 21);

maintaining statistics descriptive of said input data-stream during a selected interval (Claims 7 and 22);

incorporating a penalty into said competing-algorithm score (Claims 8 and 23);

selecting said penalty to be indicative of a cost associated with replacing said incumbent algorithm with said competing algorithm (Claims 9, 24 and 28);

generating meta-data characterizing an input-data stream to said data-storage system (Claims 10, 15 and 27);

statistically characterizing a usage pattern of said data-storage system (Claims 10 and 25);

generating data indicative of a performance attribute of a competing algorithm (Claim 15);

providing data indicative of whether said competing algorithm is preferable (Claim 17);

a ratio indicative of an extent to which said competing-algorithm score exceeds said incumbent algorithm score during said selected interval (Claim 20).

As an example, one of ordinary skill or skilled in the art would not know what the score indicative of a performance is, e.g., is the score a number or a percentage of how accurate, or how fast an algorithm is?

What is exactly meta-data that can include, but not limited to, statistics descriptive of the input data-stream during the selected interval (Specification, page 2, last ¶)? What are exactly descriptive statistics of the input data stream?

What is meant by statistically characterizing a usage pattern? Does this mean describing a usage pattern with a quantity that is computed from a sample?

What is a usage pattern of the data-storage system? Is this a frequency of use of the data storage system? Is this expressed as a percentage or definite number, a mean of a sample?

What are exactly performance attributes of an algorithm?

What is exactly the claimed input-stream? The specification indicates that the input stream is live, non-stationary random process? How can an input stream be a process? What is live? Does it mean real-time? Non-stationary random process? If the process is non-stationary random process, how can this be compared with another process which is also non-stationary random process because the process is random and changing?

Claim 20 recites *a ratio indicative of an extent to which said competing-algorithm score exceeds said incumbent algorithm score during said selected interval.* The closest portion of the specification that mentions about a ratio is the hit ratio that indicates the probability that data sought is already in the cache memory (Specification, page 6, 4th ¶). Since a ratio is defined to be a quotient of two mathematical expressions, one would wonder what those two mathematical expressions are.

Penalty and penalty associated with a cost of replacing an incumbent algorithm are nowhere described in the specification.

10. Claims 1, 6, 7, 8, 9, 10, 14, 15, 16, 17, 20, 21, 22, 23, 24, 25, 27, 28 and 29 are rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the

enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claims 1, 6, 7, 8, 9, 10, 14, 15, 16, 17, 20, 21, 22, 23, 24, 25, 27, 28 and 29 are rejected under 35 U.S.C. § 112, first ¶, because the specification, while being enabling for:

simulating performance of a competing algorithm executing in place of said incumbent algorithm (Claims 1 and 16);

evaluating, on the basis of said simulation, a competing-algorithm performance of said competing algorithm (Claims 14 and 29);

does not reasonably provide enablement for:

the remaining limitations recited in the above-identified claims. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention commensurate in scope with these claims.

The following limitations:

evaluating an incumbent-algorithm score indicative of a performance of an incumbent algorithm (Claims 1 and 16);

obtaining meta-data characterizing an input-data stream provided to said incumbent algorithm (Claims 6 and 21);

maintaining statistics descriptive of said input data-stream during a selected interval (Claims 7 and 22);

incorporating a penalty into said competing-algorithm score (Claims 8 and 23);

selecting said penalty to be indicative of a cost associated with replacing said incumbent algorithm with said competing algorithm (Claims 9, 24 and 28);

generating meta-data characterizing an input-data stream to said data-storage system (Claims 10, 15 and 27);

statistically characterizing a usage pattern of said data-storage system (Claims 10 and 25);

generating data indicative of a performance attribute of a competing algorithm (Claim 15);

providing data indicative of whether said competing algorithm is preferable (Claim 17);

a ratio indicative of an extent to which said competing-algorithm score exceeds said incumbent algorithm score during said selected interval (Claim 20);

are not enabling because one skilled in the art would not know what a score indicative of a performance, meta-data characterizing an input-data stream, statistics descriptive of said input-data stream, penalty, penalty cost, statistically characterizing, a usage pattern of a data-storage system, data indicative of a performance attribute, data indicative of whether said competing algorithm is preferable, ratio indicative of an extent to which said competing-algorithm score exceeds are in order to write program instructions for a computer to make and/or use the entire scope of the claimed invention without undue experimentation.

11. In view of the foregoing remarks, it would be impossible for the examiner to make any reasonable interpretation of the claims to perform a proper search and art rejection.

Conclusion

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hoang-Vu "Antony" Nguyen-Ba whose telephone number is (571) 272-3701. The Examiner can normally be reached on Tuesday-Friday, 7:15 to 17:15.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Tuan Dam can be reached at (571) 272-3695. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ANTONY NGUYEN-BA
PRIMARY EXAMINER
Art Unit 2192
November 25, 2005